

**Notice of Allowability**

Application No.

10/784,164

Examiner

Seyed Azarian

Applicant(s)

NIWA ET AL.

Art Unit

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/24/2007 and fax inquiry filed on 10/11/2007.
2. ☒ The allowed claim(s) is/are 1-8 and 11-36 now renumbered as 1-34.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **Response to Amendment**

1. Based on applicant's amendment, filed 7/24/2007, see page 9 through 12 of the remarks, also telephone interview and fax inquiry filed on October 11, 2007, with respect to cancellation of claims 9 and 10, and amended claims 1, 31-34 and new claim 36, have been fully considered and are persuasive, upon further consideration the rejection, of 102(e) and 103(a) for claims 1-8 and 11-36, are hereby withdrawn.

The claims 1-8 and 11-36 now renumbered as 1-34 are allowed.

### **EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it must be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicants Attorney (Andrew T. Harry, Reg No. 56,959), on October 11, 2007, without traverse.

**The amended claims 1, 31, 33, 34 and 36 as follows:**

**Cancel claims 9 and 10.**

Claim 1. (Currently Amended) An operation recognition system, comprising:  
an object to be operated;

at least one camera configured to acquire image data of an operator, at least a predetermined number of image data being acquired in a predetermined time period;

a processor configured to perform recognition processing on the acquired image data, so as to define a first virtual plane in between the object and the operator, and to determine if a predetermined part of the operator penetrates the first virtual plane by more than a variable predetermined length; and

a controller configured to control the object based on the determination.

Cancel claims 9 and 10.

Claim 31. (Currently Amended) An image display apparatus for displaying an image, the apparatus comprising:

a display configured to display the image in a screen;

a position detector configured to detect a position of an operator and a position of an operator's hand;

a virtual plane defining mechanism configured to define a virtual plane in between the screen and the operator based on the position of the operator;

a determining mechanism configured to determine a virtual contact between the virtual plane and the operator's hand based on the position of the operator's hand and a position of the virtual plane when the operator's hand penetrates the virtual plane by more than a variable predetermined length; and

a display control mechanism configured to control a display of the image based on determination by the determining element.

Claim 33. (Currently Amended) An image display apparatus for displaying an image, comprising:

a display configured to display the image in a screen;

imaging elements provided at both sides of the screen and configured to acquire image data from different directions;

a position detector configured to detect a position of an operator relative to the screen and a position of an operator part based on the acquired image data;

a virtual plane defining mechanism configured to define a virtual plane in between the screen and the operator based on the position of the operator;

a determining mechanism configured to determine a virtual contact manner between the virtual plane and the operator part based on the position of the operator part and a position of the virtual plane when the operator part penetrates the virtual plane by more than a variable predetermined length; and

a display control mechanism configured to determine an operation item corresponding to the contact manner based on determination by the determining mechanism and to control a display of the image according to the operation item.

Claim 34. (Currently Amended) A method of controlling an object, the method comprising steps of:

acquiring a predetermined number of image data of an operator in a predetermined time period;

performing recognition processing on the acquired image data;

defining a virtual plane in between the object and the operator;

determining if a predetermined part of the operator penetrates the virtual plane by more than a variable predetermined length; and based on the recognition processing; and controlling the object based on the determination.

Claim 36. (NEW) A method of controlling an object, the method comprising steps of:

acquiring a predetermined number of image data of an operator in a predetermined time period;

performing recognition processing on the acquired image data;

defining a virtual plane in between the object and the operator;

determining if a predetermined part of the operator penetrates the virtual plane based on the recognition processing when the predetermined part of operator penetrates the first virtual plane for more than a variable predetermined period; and

controlling the object based on the determination.

## REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance.

This invention relates generally, to an operation recognition system which recognizes a user's operation without a device and controls an object based on the recognition.

Based on applicant's amendment, with respect to claim 1, representing claims 31, 33-34 and 36, the closest prior art of record (Harakawa and Rubbert), Harakawa reference is directed to providing a hand pointing apparatus having a simple construction and being capable of reducing the time required for the determination of an instruction from a person to be recognized, and Rubbert reference is directed to the field of orthodontics. More particularly, the invention relates

to a computerized, interactive method and associated system for orthodontic treatment. But do not teach or suggest, among other things, " a processor configured to perform recognition processing on the acquired image data, so as to define a first virtual plane in between the object and the operator, and to determine if a predetermined part of the operator penetrates the first virtual plane by more than a variable length; and a controller configured to control the object based on the determination".

These key features in combination with the other features of the claimed invention are neither taught nor suggested by (Harakawa and Rubbert) prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Contact Information**

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

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Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Seyed Azarian*  
*Patent Examiner*  
*Group Art Unit 2624*  
October 20, 2007

A handwritten signature in black ink, reading "Seyed Azarian". The signature is written in a cursive, flowing style with a large initial "S".